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मानक

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IS 4296-4 (2002): TOOLS FOR PRESSING, Part 4: ROUND PUNCHES WITH 60 ° CONICAL HEAD AND REDUCED SHANK [PGD 4: Metal Forming Machines]



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Bhartrhari—Nitiśatakam

“Knowledge is such a treasure which cannot be stolen”

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भारतीय मानक
दाबन के औजार
भाग 4 60° शंकवाकार शीर्ष तथा लघुतर शैंक वाले गोल पंच
(पहला पुनरीक्षण)

Indian Standard
TOOLS FOR PRESSING
PART 4 ROUND PUNCHES WITH 60°
CONICAL HEAD AND REDUCED SHANK
(*First Revision*)

ICS 25.120.10

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NATIONAL FOREWORD

This Indian Standard (Part 4) (First Revision) which is identical with ISO 9181 : 1990 'Tools for pressing — Round punches with 60° conical head and reduced shank' issued by the International Organization for Standardization (ISO) was adopted by the Bureau of Indian Standards on the recommendations of the Metal Forming Machines Sectional Committee and approval of the Basic and Production Engineering Division Council.

Due to increased volume of work being done on hand-operated and power-operated presses in the country, it had created a need for the standardization of tooling elements for use on such machines. Much of the work produced by press working tools necessitates the piercing of holes. To fulfill this need, this Indian Standard was first published in 1967 to cover the general requirements for round piercing punches up to 14.4 mm effective diameter for making round holes.

Subsequently in the passage of time, many changes have been introduced in the industry to suit the need of the user industries. To bring these changes in this standard, the standard has been revised to brought out in four parts. The following major changes have been made:

- a) Types A and B of round piercing punches without head have been deleted as these are no longer in use from IS 4296.
- b) Round punches with cylindrical head with straight shank and cylindrical head with reduced shank have been included and are covered in Parts 2 and 3 of this standard.
- c) Dimensions of Types D and C have been thoroughly modified and are covered in Parts 1 and 4.

In this part of the standard, Type C 'Shouldered Punch with Head' are covered as per the earlier version of IS 4296.

The main use of punches defined in this standard is for punching holes in steel sheet. They may also be used for punching holes in other materials.

Other three parts of this standard with main title as 'Tools for pressing' are:

- Part 1 Round punches with 60° conical head and straight shank (*first revision*)
- Part 2 Round punches with cylindrical head and reduced shank
- Part 3 Round punches with cylindrical head and straight shank

The text of the ISO Standard has been approved as suitable for publication as Indian Standard with small deviations that radius indicated in the figure has been modified to read as radius should be grounded to remove tool marks.

Certain conventions are however not identical to those used in Indian Standards. Attention is particularly drawn to the following:

- a) Wherever the words 'International Standard' appear referring to this standard, they should be read as 'Indian Standard'.
- b) Comma (,) has been used as a decimal marker in the International Standard while in Indian Standards, the current practice is to use a point (.) as the decimal marker.

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS 2 : 1960 'Rules for rounding off numerical values (*revised*)'. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

Indian Standard
TOOLS FOR PRESSING
PART 4 ROUND PUNCHES WITH 60°
CONICAL HEAD AND REDUCED SHANK
(First Revision)

1 Scope

This International Standard specifies the dimensions and tolerances, in millimetres, for round punches with 60° conical head and reduced shank, having shank diameters D_1 of 2 mm or 3 mm.

It gives examples of materials and hardness, and specifies the designation of punches which meet the requirements of this International Standard.

The main use of punches defined in this International Standard is for punching holes in steel sheet. They may also be used for punching holes in other materials.

2 Dimensions

See figure 1 and table 1

3 Material and hardness

The material is left to the manufacturer's discretion. The following hardness values are given as examples:

a) tool steel with 12 % Cr:

- point: (62 ± 2) HRC
- head: (45 ± 5) HRC

b) high-speed steel:

- point: (64 ± 2) HRC
- head: (50 ± 5) HRC

4 Designation

A round punch with 60° conical head and reduced shank in accordance with this International Standard shall be designated by

- a) "Round punch with conical head";
- b) reference to this International Standard;
- c) its shank diameter, D_1 ;
- d) its point diameter, D_3 ;
- e) its total length, l

EXAMPLE

The designation for a round punch with 60° conical head and reduced shank, of shank diameter $D_1 = 2$ mm, point diameter $D_3 = 0.5$ mm and total length $l = 71$ mm is as follows:

Round punch with conical head ISO 9181 - 2 × 0.5 × 71

Surface roughness values in micrometres

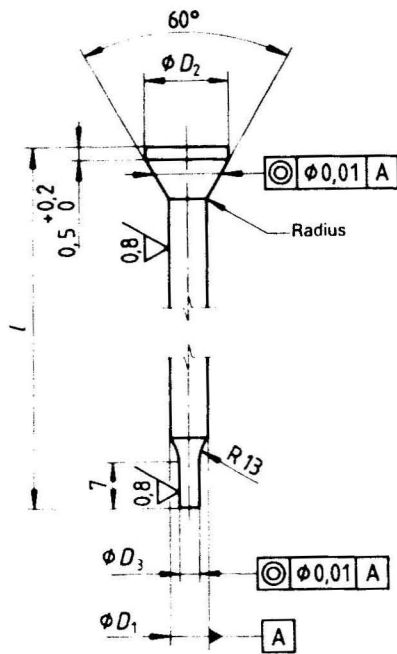


Figure 1

Table 1

D_1 h6	D_3 j6	D_2	l $+0,5$ 0	
			71	80
2	$0,5 \leq D_3 \leq 1,6$	3	x	x
3	$1,4 \leq D_3 \leq 2,9$	4,5	x	x

Annex A
(informative)

Bibliography

- [1] ISO 4957:1980, *Tool steels*.
 - [2] ISO 6508:1986, *Metallic materials — Hardness test — Rockwell test (scales A - B - C - D - E - F - G - H - K)*.
 - [3] ISO 6752:1984, *Round punches with 60 degrees conical head and straight shank*.
 - [4] ISO 8695:1987, *Tools for pressing — Punches — Nomenclature and terminology*.
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Bureau of Indian Standards

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Amendments Issued Since Publication

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